

Work Order ID 133774

Wednesday, June 17, 2015 2:50:05 PM

133774

Page 1

Item ID: D4978-1 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Tube
 Start Date: 6/17/2015 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 6/17/2015 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: MLS Date: JUN 17 2015 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4978	D								

110 0.00
110
 Mill Conv Memo 0.00
 Conventional Milling Machine
 1- CUT AS PER DWG
 2- Mill end of tube as per dwg
 3- DEBURR AS PER DWG
 4 0 J.C.L. 15/06/15

120 0.00
120
 QC Memo 0.00
 Quality Control
 QC6- Inspect dimensions to drawing
 (4) DAS 38 9-89
 JUN 25 2015

130 0.00
130
 Packaging Memo 0.00
 Packaging
 Identify as per dwg & Stock Location: W/101
 STOCK IN LARGE FAB
 4 6-3-16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Work Order ID 133774

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Page 2

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Start Date: 6/17/2015 Start Qty: 4.00 ***4*** Cust Item ID:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140	QC21- Final Inspection - Work Order Release	0.00							
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140

QC

Quality Control

Memo

0.00

MCJ

MAR 18 2016

MCJ MAR 17 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
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				Completed By	
				Lead hand / Supervisor Approval Verification	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Wednesday, June 17, 2015 2:50:09 PM

Page 1

Work Order ID: 133774

133774

Parent Item: D4978-1

D4978-1

Parent Item Name: Tube

Start Date: 6/17/2015

Required Date: 6/17/2015

Start Qty: 4.00

Required Qty: 4.00

Comments:

IPP REV:A 13.11.18 NEW ISSUE DD VERF:JLM
13.12.04 AS PER DWG REV.A DD VERF:JLM

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M316TR0.500W.065		Purchased		No			f	25.9400		7			
M316TR0 500W 065										**			
316 RD Tubing 0.500" x .065" wall													

Location

Loc Qty

Loc Code

MAT038

25.94

M129466

12.58

M130510

13.36

6.1771

J.C.-L 15/06/25

DQA: _____ Date: _____



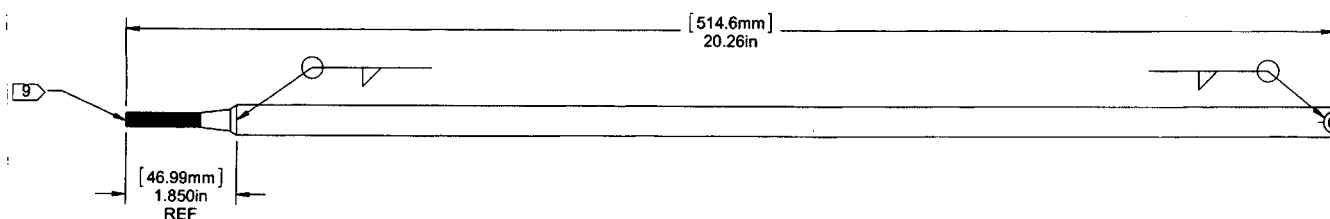
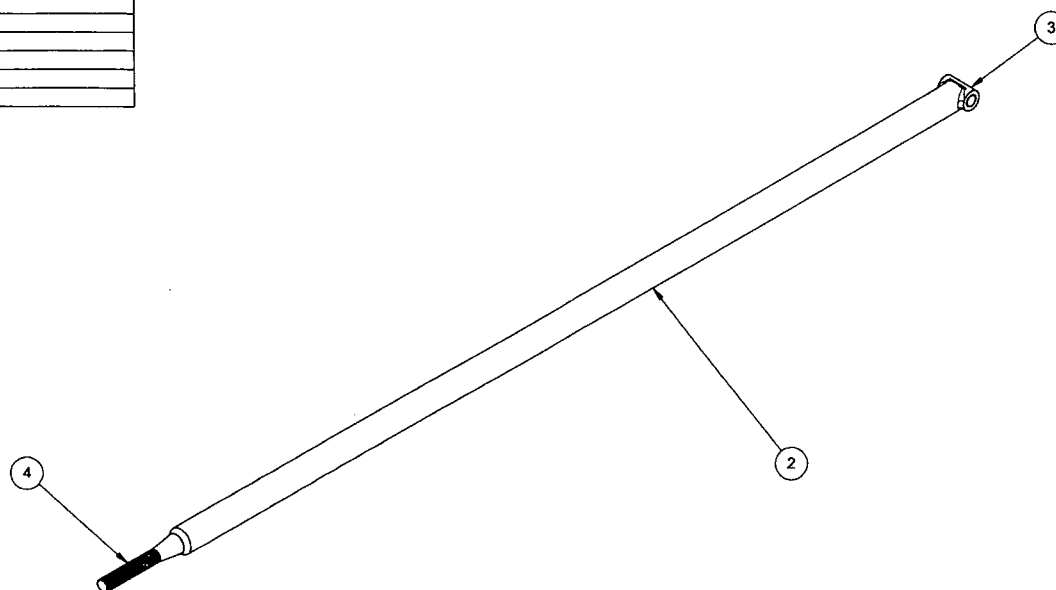
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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OTHER : ☐					

ITEM	QTY -041	P/N	DESCRIPTION
1	X	D4978-041	STRUT ASSY
2	1	D4978-1	TUBE
3	1	D4978-3	TUBE
4	1	D4978-5	STRUT THREAD



D4978-041 STRUT ASSY

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX, AS PER QSI 005.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4978-041", REVISION, BATCH NUMBER AND DATE OF MANUFACTURE, USING AN X-TENSION STAMP, PER QSI 044 METHOD 6.2
- 7) WEIGHT: 0.53 lbs (0.25 kgs)
- 8) WELD PER DART QSI 004
- 9) MASK THREAD PRIOR TO FINISH

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO 133374 MLJ
15-06-17

RELEASED
2014-06-11

REV.	DESCRIPTION	BY	DATE
D	REVISE NOTE 6) (ZN A8-1)	AK	14.06.05
C	REVISED D4978-5 (ZN C3-4)	AK	14.05.13
B	REVISED LENGTH OF D4978-1 (ZN C4-2) AND D4978-3 (ZN C4-3)	AK	14.05.07
A	NEW ISSUE	DC	13.11.13
DESIGN	DC	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	D4978	SHEET 1 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSY	NTS
DATE	14.06.05	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

[12.70mm]
Ø0.500in
REF

[1.60mm]
0.063in
REF

[467.6mm]
18.41in

[4.76mm]
R0.188in

D4978-1 TUBE

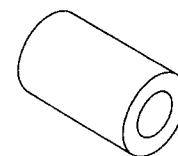
RELEASED
2014-06-11

NOTES:

- 1) MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING, Ø0.500 X 0.063 WALL
PER ASTM A213 OR ASME SA213 OR ASTM A269
REF DART SPEC M304TR0.500W.063
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.47 lbs (0.24 kgs)

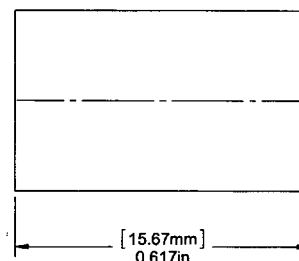
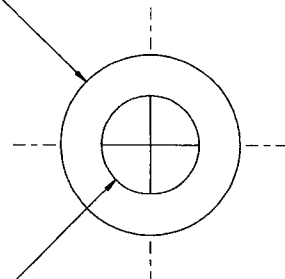
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DESIGN	DC	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	D4978	SHEET 2 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	# STRUT ASSY	NTS
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[9.53mm]
Ø0.375in

[5.21mm]
Ø0.205in



D4978-3 TUBE

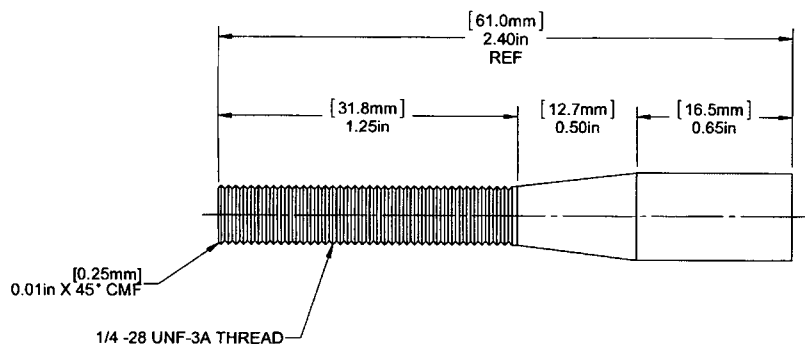
RELEASED
2014-06-11

NOTES:

- 1) MATERIAL: AISI 304/316 SS ROUND BAR
PER ASTM A276
REF DART SPEC M304R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.01 lbs (0.005 kgs)

APPROVED

DESIGN	DC	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	D4978	SHEET 3 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	STRUT ASSY	NTS
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$9.27\text{mm}^{+0.13}_{0.00}$
 $\phi 0.365\text{in}^{+0.005}_{-0.000}$

D4978-5 STRUT THREAD

NOTES:

- 1) MATERIAL: AISI 304/316 SS ROUND BAR
PER ASTM A276
REF DART SPEC M304R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.04 lbs (0.02 kgs)

APPROVED

DESIGN	DC	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	D4978	SHEET 4 OF 4
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